Cu	S	O	H_2O	2H 1O
25.3 g	12.9 g	25.7 g	36.1 g	18.02

$n =$ $\frac{25.3\,g}{63.55\,g/mol}$ $\frac{12.9\,g}{32.06\,g/mol}$ $\frac{25.7\,g}{16.00\,g/mol}$ $\frac{36.1\,g}{18.02\,g/mol}$

0.398 mol 0.402 mol 1.606 mol 2.00 mol

$$\frac{Cu_{.398}\,S_{0.402}\,O_{1.606}(H_2O)_2}{.398}$$ 5.01

$$Cu_1\,S_1\,O_4\,(H_2O)_5$$

$$CuSO_4 \cdot 5H_2O$$

Empirical Formula to Molecular Fomula
aka True Formula(ionic)

1-Find multiplier $\frac{\text{molar mass MF}}{\text{molar mass EF}}$ molecular / empirical

2-multiply subscripts by this number.

Empirical and Molecular Formulas

Empirical Fomula	Molecular Formula aka True Formula
HO	H_2O_2
CH	C_2H_2
CH	C_6H_6
NO	NO
NO_2	N_2O_4
NaCl	NaCl
$MgSO_4$	$MgSO_4$
CH_2O	$C_6H_{12}O_6$

Calculating Molecular Formulas
aka True Formula(ionic)

- **Molecular formulas can be calculated using empirical formulas**

Ex: Given that the empirical formula of a compound is CH and the molar mass is 104 g/mol, calculate the molecular formula.

1 C 12.01
1 H 1.01
13.02 g/mol

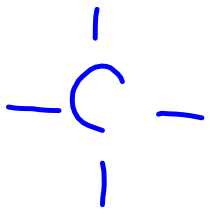
CH → $C_?H_?$ 104 g/mol

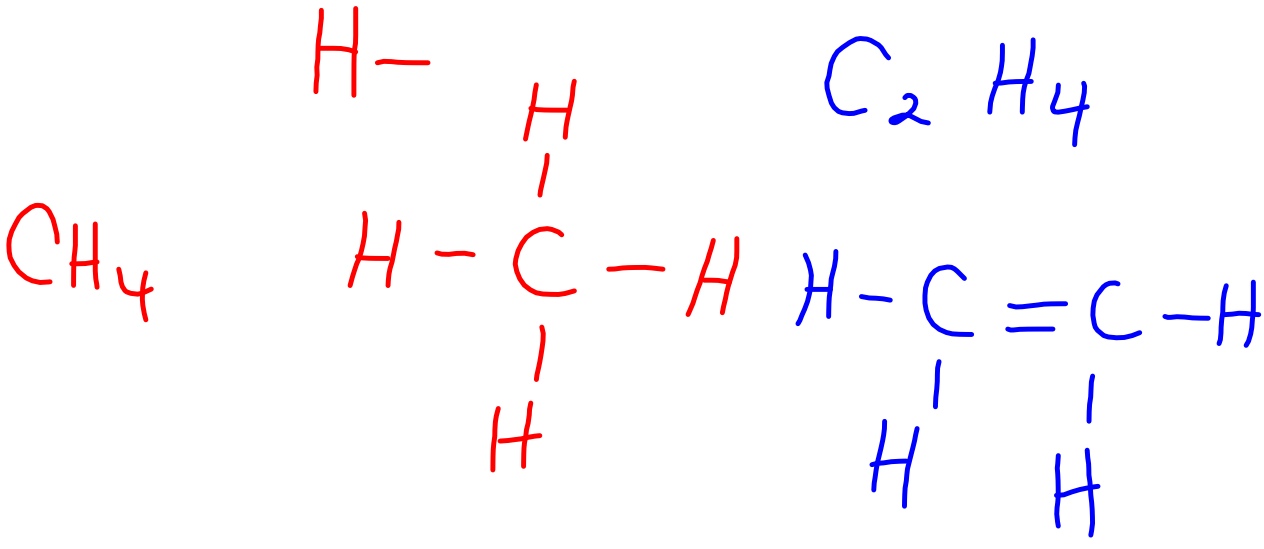
① 13.02 g/mol

② Find multiplier

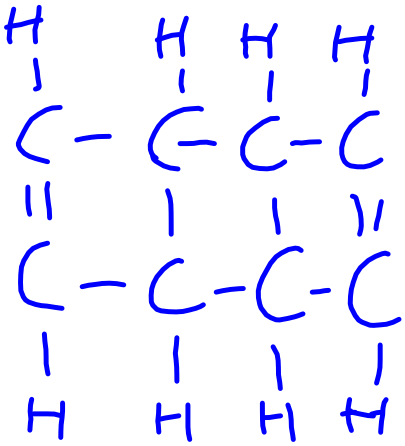
$\frac{104}{13.02} = 8$

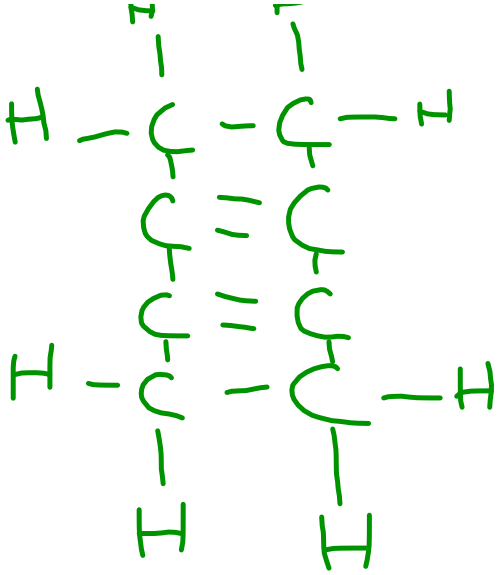
C_8H_8

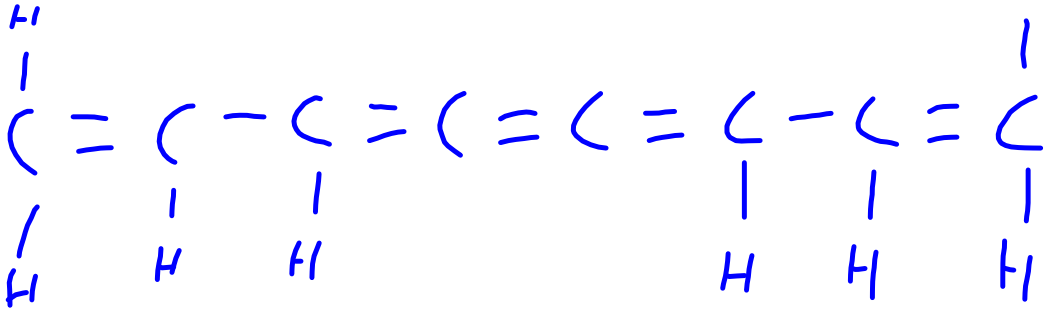


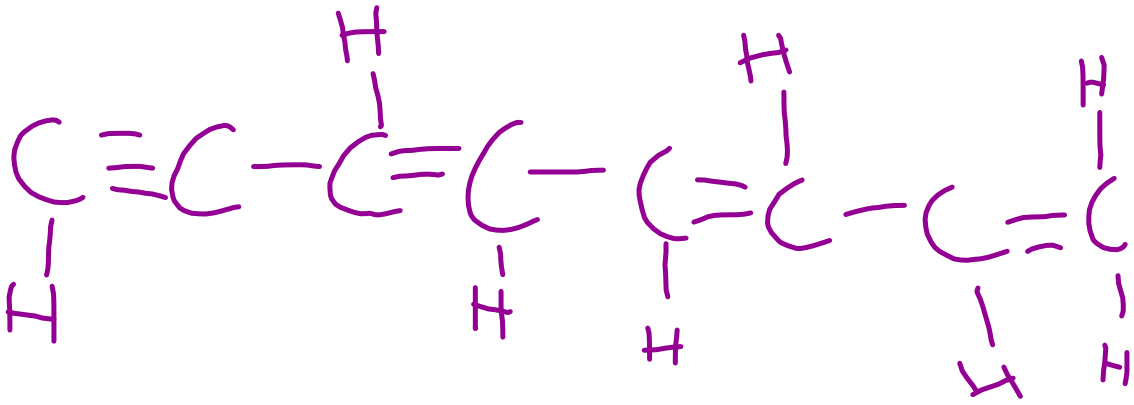


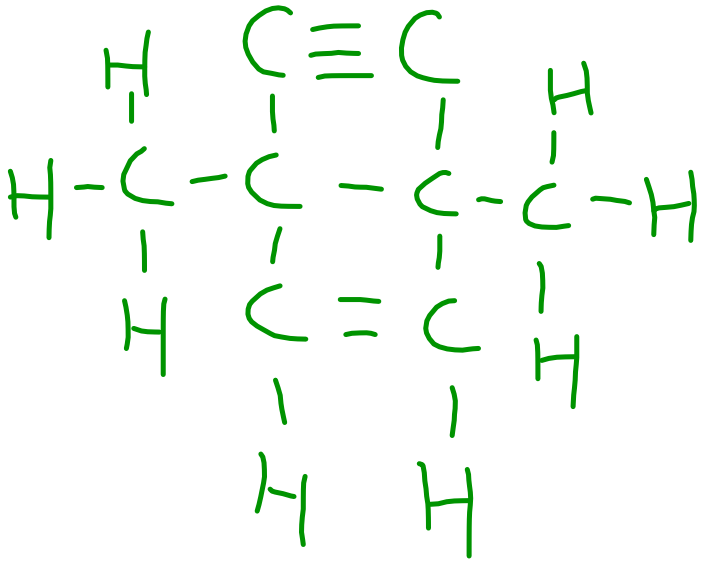
CH_4 C_2H_4











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